



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Atty. Docket

MAURICE J. CUIJERS

PHN 16,580

Serial No. 09/179,290

Group Art Unit: 2621

Filed: October 27, 1998

Examiner: A. ALAVI

Title: COMPRESSING AND DECOMPRESSING AN IMAGE

Commissioner for Patents
Washington, D.C. 20231

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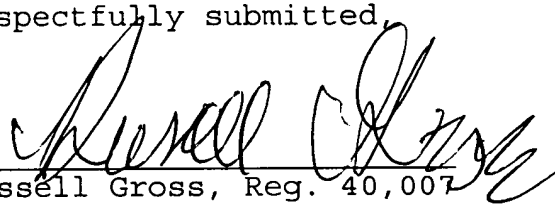
Technology Center 2600

Sir:

Enclosed is an original plus two copies of an Appeal
Brief in the above-identified patent application.

Please charge the fee of \$310.00 to Deposit Account
No. 14-1270.

Respectfully submitted,

By 
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On August 26, 2002

By Edna Chapa

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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In re Application of:

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APPEAL BRIEF

Sir:

The rejection of Claims 2-12 is hereby being appealed, which are produced in the attached Appendix.

1. Relay Party in Interest

The real party in interest is U.S. Philips Corporation, the assignee herein.

2. Related Appeals and Interferences

The Appellant is not aware of any appeals or interferences that relate to the present application.

3. Status of all Claims

Claims 2-12 are currently pending in the present application. Claims 2-12 were submitted in the present application when

originally filed. In the Office Action dated April 9, 2002, Claims 2-12 were finally rejected.

4. Status of Amendment

No Amendments were filed subsequent to the Final Rejection of April 9, 2002.

5. Summary of the Invention

The present invention is directed to a method and device of compressing a source image. As can be seen from Figure 2, the method includes dividing each of a set of regions in the source image into groups of image locations according to a similarity of color values of pixel locations of the group in the source image 26, as described on page 5. As described on page 5, a color look-up table is provided and a respective reference to the color look-up table for each group is determined 28.

As further described on page 5, forming a compressed image containing an indication of respective groups to which respective pixels belong and the respective references corresponding to the groups 28. Further, the color loop-up table is provided for the source image, all color values of the source image being in the color look-up table, the reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color

value in the source image for at least one image location in the particular group 28, as also described on page 5.

6. Issues Presented for Review

The Appellant respectfully requests that the Board of Appeals review the final rejection of Claims 2-12 under 35 USC §102 as being anticipated by Suzuki (U.S. Patent NO. 5,825,917).

7. Grouping of the Claims

The Appellant respectfully submits that the claims do not either stand or fall together. In particular, Claims 2-7 and 11-12 are separately patentable from Claims 8-10.

8. Arguments

Claims 2-12 stand finally rejected under 35 USC 102 as being anticipated by Suzuki (U.S. Patent NO. 5,825,917).

In order to make a proper anticipation rejection under 35 USC 102, Section 706.02 of the MPEP requires that a reference must teach every aspect of the claimed invention either explicitly or impliedly. Further, in order to establish anticipation, it is incumbent upon the Examiner to identify in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Mascinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458, (Fed. Cir. 1984).

The presently claimed invention is directed to selecting a small number of references to compress a source image into an output image. In the source image, each pixel has a reference to a look-up table. According to the present invention, a small number of references per region are selected by taking the references use in the source image for a small number of representative pixels in the region. This enables the present invention to use the look-up table for both the source image and output image.

In contrast, Suzuki creates a color table for the source image in column 5, lines 55-65. Suzuki then creates a new color table for the output image in column 7, lines 42-50.

In view of the above, it is respectfully submitted that the burden of showing that Suzuki anticipates each and every element recited in the claims 1-12 has not been met. In particular, Suzuki neither explicitly nor impliedly teaches "...reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color value in the source image...", as recited in Claims 2 and 8-10.

In addressing this feature in the above rejection, column 7, lines 29-33, of Suzuki is being relied on. However, in column 7, lines 29-33, Suzuki discloses:

"The image transmitter 30 further includes a color table creation section 36 which creates a **new color table** by extracting color table elements

necessary for the representation of the final image..."

Based on the above disclosure, Suzuki discloses the use of a new color table for the output image. Thus, it is evident that Suzuki does not use the same color table for the source and output image. Therefore, it is respectfully submitted that Suzuki does not anticipate the presently recited "...reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color value in the source image..."

It is also respectfully submitted that Claims 2-7 and 11-12 recite additional features not anticipated by Suzuki. In particular, Suzuki neither explicitly nor impliedly teaches "the reference used for the image locations in the particular group is constructed by selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image", as recited in Claims 2 and 11. Based on this feature, Claims 2-7 and 11-12 are separately patentable from Claims 8-10.

In addressing this feature in the above rejection, column 14, line 62 to column 15, line 8, was being relied on. However, in this portion, Suzuki only discloses:

"Referring to Figure 11, there is depicted a diagram showing a method of designating image regions by a segmentation method. As shown, an

original image 1 is divided into regions A and D, representative of four subjects and their background regions E-to G...

The image is coded using a small amount of data to define the positions and contents of the regions A to G. The definitions of positions will be usually given by drawing a peripheral line of each region and by describing coordinates of pixels constituting the line."

Based on the above disclosure, it was evident that Suzuki did not disclose "selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image", as required by the claims. However, despite this point, the above rejection was maintained in the Advisory Action dated June 21, 2002.

In particular, the Advisory Action now relied on column 5, lines 60-64 for the presently recited "selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image".

In column 5, lines 60-64, Suzuki discloses using the representative colors as elements. However, in column 5, lines 56-58, Suzuki discloses that the representative color is an average color for each region. Based on this disclosure, it is evident

that Suzuki does not perform "selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image", as required by the claims. Therefore, it is respectfully submitted that this feature is also not anticipated by Suzuki.

In view of the above-described distinctions, the Appellant respectfully submits that the invention of Claims 2-12 is not anticipated by Suzuki. Therefore, it is respectfully requested that the final rejection of these claims be reconsidered and reversed.

Please charge the fee of \$310.00 to Deposit Account No. 14-1270.

Respectfully submitted,

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On August 24, 2002
By Edna Chagn

A P P E N D I X

2. A method of generating image values of an output image, the method comprising the steps of

- defining a subdivision of the output image into regions of image locations,
- providing a color look-up table,
- providing a respective set of references to the color look-up table for each region,
- providing a pixel map comprising a selection code for each image location,
- selecting a particular reference to the color look-up table for a particular image location from the particular set provided for the region to which the particular image location belongs, by using the selection code as a pointer in that particular set,
- wherein the pixel map is constructed by grouping the image locations in each region into groups according to a similarity of color values in a source image, the selection code identifying the group to which the image location belongs among the groups for the region,

wherein the color look-up table is provided for the source image, all color values of the source image being in the color look-up table, the reference used for the image locations in a particular group of the pixel map being constructed from at least

one reference to the color look-up table which defines the color value in the source image for at least one image location in the particular group,

wherein the reference used for the image locations in the particular group is constructed by selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image.

3. A method according to Claim 2, wherein the representative image location is selected by determining a image property for each image location in the particular group from the color values in the source image for these image locations in the particular group, and selecting as representative image location an image location for which the image property is median value among the image properties of the image locations in the particular group.

4. A method according to Claim 3, wherein the representative image location is an image location which has a median value of the image property among the image properties of the image locations in the particular group.

5. A method according to Claim 3, wherein the image property is the luminance of the color value in the source image.

6. A method according to Claim 1, wherein the output image represents a pyramid of levels of increasingly higher resolution versions of a basic image, each level being sub-divided into regions, the color look-up table being common for all levels, each level being associated with a respective pixel map, the particular reference to the color look-up table being selected for a particular image location at a particular level, from the particular set provided for the region for that level according to the pixel map for that level.

7. A method according to Claim 6, used for texture mapping in computer graphics, wherein the different resolution levels of a mipmap.

8. A method of compressing a source image, the method comprising

- dividing each of a set of regions in the source image into groups of image locations according to a similarity of color values of pixel locations of the group in the source image,
- providing a color look-up table,
- determining a respective reference to the color look-up table for each group,
- forming a compressed image containing an indication of respective groups to which respective pixels belong and the respective

references corresponding to the groups,

wherein the color look-up table is provided for the source image, all color values of the source image being in the color look-up table, the reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color value in the source image for at least one image location in the particular group.

9. A machine readable medium comprising a program for compressing a source image, the program comprising

- dividing each of a set of regions in the source image into groups of image locations according to a similarity of color values of pixel locations of the group in the source image,
- providing a color look-up table,
- determining a respective reference to the color look-up table for each group,
- forming a compressed image containing an indication of respective groups to which respective pixels belong and the respective references corresponding to the groups,

wherein the color look-up table is provided for the source image, all color values of the source image being in the color look-up table, the reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color

value in the source image for at least one image location in the particular group.

10. A device for compressing a source image, the device comprising

- means for dividing each of a set of regions in the source image into groups of image locations according to a similarity of color values of pixel locations of the group in the source image,
- means for providing a color look-up table,
- means for determining a respective reference to the color look-up table for each group,
- means for forming a compressed image containing an indication of respective groups to which respective pixels belong and the respective references corresponding to the groups, wherein the color look-up table is provided for the source image, all color values of the source image being in the color look-up table, the reference used for the image locations in a particular group of the pixel map being constructed from at least one reference to the color look-up table which defines the color value in the source image for at least one image location in the particular group.

11. A device as claimed in Claim 10, wherein the reference used for the image locations in the particular group is constructed by selecting a representative image location from the particular group and taking the reference defining the color value for the representative image location in the source image.

12. A device as claimed in claim 11, wherein the representative image location is selected by determining a image property for each image location in the particular group from the color values in the source image for these image locations in the particular group, and selecting as representative image location an image location for which the image property is a median value among the image properties of the image locations in the particular group.